

We claim:

1. A composition comprising a population of ions, each of said ions having more than a minimum and less than a maximum number of charges or a number of charges between the minimum and maximum numbers.
2. A composition comprising a population of ions, each of said ions having n charges where n in said population has every integral value from a minimum value greater than 4 to the maximum value in the population.
3. A composition according to claim 1 in which the minimum number of charges is greater than 4.
4. A composition according to claim 1 in which said ions are formed by dispersing a solution containing an analyte into a bath gas as highly charged droplets.
5. A composition according to claim 3 in which the minimum number of charges is greater than 4.
6. A composition according to claim 3 in which the analyte is selected from the group consisting of proteins, nucleic acids, carbohydrates and related compounds.
7. A composition according to claim 5 in which the minimum number of charges is greater than 4.
8. A method of determining the molecular weight of an analyte which comprises: (a) forming a population of ions, each of said ions having a plurality of charges, (b) measuring a mass for each of the population of ions having a plurality of charges, and (c) applying an averaging or deconvoluting algorithm.

9. A method according to claim 7 in which the plurality of charges is greater than 4.

10. A method according to claim 7 in which the population of ions is formed by dispersing a solution containing the analyte into a bath gas as highly charged droplets.

11. A method according to claim 9 in which the minimum number of charges on any ion is more than 4.

12. A method according to claim 7 in which the analyte is a biopolymer from the group consisting of proteins, nucleic acids, carbohydrates and related compounds.

13. A method according to claim 9 in which a necessary component of the dispersion process is the application of a high electric field to a stream of liquid emerging from a small tube, said liquid comprising a solution that contains analyte species.

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E1
Add A2

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E2